



DATE: 23/02/2022

Event Coordinator(s)

Prof. Shailaja Udtewar

Student Coordinator(s)

Ms. Kavita Sharma

Time & Place:

1 p.m. to 2.30 p.m.

Google Meet Platform

Department:

Electronics and
Telecommunication

No. of participant:

1 Faculty

37 Students

OBJECTIVE:

The world of Education is changing tremendously, owing to modern requirements and much-needed changes. Conventional methods of Education need to be changed to adapt to current conditions that are way different from the requirements about a decade or two ago. Attention span and the way of grasping knowledge for students have also been changing for some time now. One of the most effective and evergreen methods in Education Institutions is Guest lectures.

A guest lecture on "Indian Regional Navigation Satellite System (IRNSS) and SBAS" was planned for Final year EXTC students. IRNSS is an autonomous regional satellite navigation system being developed by ISRO (Indian Space Research Organization) which is developed parallel to the GAGAN (GPS Aided GEO Augmented Satellite Navigation) program to help in providing location, map navigation and other location-based services. It consists of a constellation of seven satellites and a supporting ground segment. Three of the satellites in the constellation will be placed in a geostationary orbit and the remaining four in a geosynchronous inclined orbit of 29° relative to the equatorial plane. Such an arrangement would mean all seven satellites would have continuous radio visibility with Indian control stations. The Indian Space Research Organization (ISRO) and Airports Authority of India (AAI) have also implemented the GPS Aided Geo Augmented Navigation-GAGAN project as a Satellite Based Augmentation System (SBAS) for the Indian Airspace.

SCOPE:

As students of the final year Electronics and Telecommunication have Satellite Communication as one of their subjects, so a guest lecture on IRNSS & SBAS will give students a better opportunity to learn about an explicit topic in a way that gets them involved in the class and actively join in a more convenient way of teaching.

RESOURCE PERSON:


Dr. Sonal Parmar


Assistant Professor

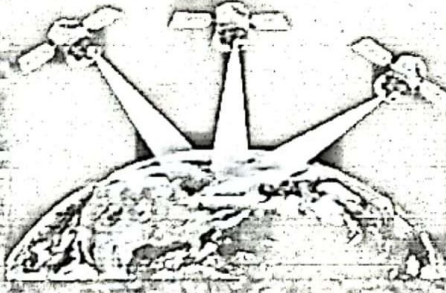
Mukesh Patel School of Technology Management & Engineering

Vile Parle (West), Mumbai

PHOTOS:

 **Xavier Institute of Engineering**
Mahim Mumbai 400016

 Department of Electronics and Telecommunication Engineering



GUEST LECTURE
INDIAN REGIONAL NAVIGATION SATELLITE SYSTEM (IRNSS)
& SATELLITE BASED AUGMENTATION SYSTEMS (SBAS)

Resource Speaker
Dr. Sonal Parmar, NMIMS

23rd February, 2022
1:00 - 2:30 pm
Google Meet

Prof. Shailaja Udtewar
Faculty In-Charge

Make this poster digital too

SVKM'S NMIMS University
Mumbai Pimpri School of Technology Management and Engineering
Department of Electronics Engineering, SVKM's Suraj
Space Applications Centre (sac.gov.in)

Indian Regional Navigation Satellite System (IRNSS) and SBAS

PSLV-C41/IRNSS-21 Mission: Curtain Raiser Video - English - ISRO
ISRO - Government of India
Space Applications Centre (sac.gov.in)
IRNSS (sac.gov.in)

Presented by
Dr. Sonal Parmar
Assistant Professor

1:01 PM | yty-pub-phi

Indian Regional Navigation Satellite System (IRNSS)- India own GPS

1:03 PM | yty-pub-phi

| Service Type | Signal | Frequency | Accuracy |
|--------------------------------------|-----------|--------------------------------------|--|
| Standard Positioning Services (SPS) | BPSK (1) | L5 (1176.45 MHz) S (2492.028 MHz) | Single Frequency ± 20 meters ± 100 nsec. |
| Restricted Positioning Services (RS) | BOC (5.2) | L5 (1176.45 MHz) S (2492.028 MHz) | Dual Frequency ± 10 meters ± 15 nsec. |

1:08 PM | yty-pub-phi

Navigation Systems Around The World


| Navigation System | Country | Operator | Type | Coverage |
|--|----------------|---|----------------------|-----------------------------------|
| Global Positioning System (GPS) | United States | Air Force Space Command (AFSPC) | Military, civilian | Global |
| GLONASS | Russia | Russian Aerospace Defense Forces VKO | Military | Global |
| BeiDou Navigation Satellite System (BDS) | China | China National Space Administration (CNSA) | Military, commercial | Global (Operational (regionally)) |
| Indian Regional Navigation Satellite System, IRNSS (Operational by 2016) | India | Indian Space Research Organisation (ISRO) | Military, civilian | Regional |
| Galileo (in development) | European Union | GSA, ESA European Space Agency European GNSS Agency | Civilian, commercial | Global |
| Quasi-Zenith Satellite System (QZSS) (in development) | Japan | Japan Aerospace Exploration Agency (JAXA) | Civilian | Regional |

Satellite Navigation Service


It is an emerging satellite based system with commercial and strategic (gaining of overall or long-term military advantage) applications.

To meet the emerging demands of the Civil Aviation requirements and to meet the user requirements of the positioning, navigation and timing based on the independent satellite navigation system

ISRO is working jointly with Airport Authority of India (AAI) in establishing the GPS Aided Geo Augmented Navigation (GAGAN) system and a regional satellite navigation system called Indian Regional Navigation Satellite System (IRNSS)



GPS Aided Geo Augmented Navigation (GAGAN)



GAGAN Stability tests were successfully completed in June 2013

GAGAN project is a Satellite Based Augmentation System (SBAS) for the Indian Airspace. GAGAN provides the additional accuracy, availability, and integrity necessary for all phases of flight, from enroute through approach for all qualified airports within the GAGAN service volume.

GAGANs Payload is already operational through GSAT-8 and GSAT-10 satellites.

Applications: Civil aviation sector
 Other applications include: Navigation and Safety Enhancement in Railways, Roadways, Ships, Spacecraft
 Geographic Data Collection
 Scientific Research for Atmospheric Studies
 Geodynamics
 Natural Resource and Land Management
 Location based services, Mobile, Tourism, etc.

Signal Strength Chart

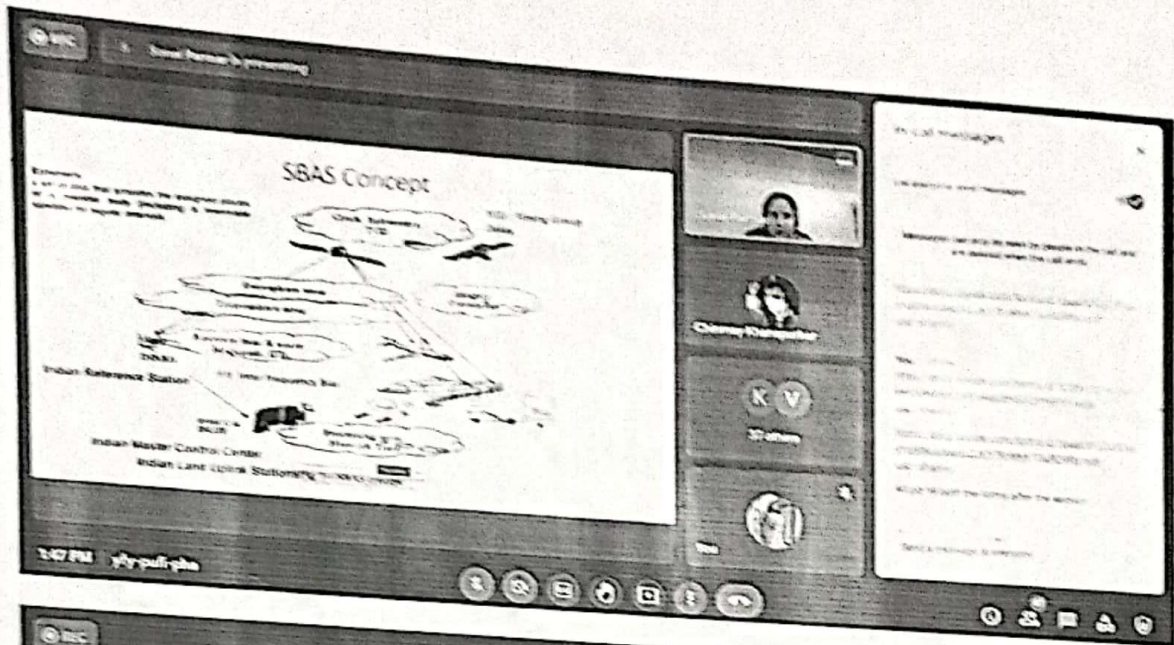
6:34 PM

GPU/GA NMEA string

6:44 PM

SKYplot

6:54 PM



Shailaja

Prof. Shailaja Udtewar
Event Coordinator(s)

Vidya

Dr. Vidya Sarode
HOD EXT C

Y. D. Venkatesh

Dr. Y. D. Venkatesh
Principal

Head of the Department
Department of Electronics and Telecommunication
Xavier Institute of Engineering
Mahim Causeway, Mahim (W), Mumbai - 400 016

PRINCIPAL
Xavier Institute of Engineering
Mahim, Mumbai - 400 016.



Xavier Institute of Engineering

Mahim Mumbai 400016

Department of Electronics and Telecommunication Engineering

Date: 14/02/2022

Notice

All the students of B.E (EXTC) are hereby informed that a Guest lecture on "Indian Regional Navigation Satellite System (IRNSS) and Satellite Based Augmentation Systems (SBAS)" has been organized on 23rd February, 2022 (Wednesday) from 1:00 pm to 3:00 pm on Google Meet Platform (Google Classroomlink).

This lecture is arranged so that students will have a glimpse of (IRNSS), satellite-based navigation system which provides positioning, navigation and timing services for users over Indian region and how the performance of Global Navigation Satellite Systems (GNSSs) can be improved by regional Satellite-based Augmentation Systems (SBAS). The benefits and challenges of each approach and real time life use cases will be explored.

All are requested to attend the same.

Ms. Shailaja Udtewar
(Faculty Incharge)

Dr. Vidya Sarode
(HOD-EXTC)

Day 3: Feedback TECH-WEEK-EXTC Guest Lecture on "Indian Regional Navigation Satellite System (IRNSS) and Satellite Based Augmentation Systems (SBAS)"

38 responses

Publish analytics

Name

38 responses

Shantanu Chhailkar

Srushti santosh patkar

Bhavesh Yadav

kavita sharma

Muthu Jyothika Narayanan

Vikas Tiwari

Chetna Patil

Ajit Kumar Chetty

Mohammad Umer Baig

Yogita Labde

Ekta Gupta

Neha Koyande

Mubarak Khalife

Kishorekamalesh Naicker

CHINMAY khanapurkar

SHREYASH KASHYAP

Sahil Hambire

Jayesh Shinde

Sundar Kulkarni

Mauli Pawar

Fernando Russell

Ruth Priya nadesan

Nisha Jadhav

Mandar Patil

Rohan Khamkar

Nevil Rego

Karan singh

Hamza Shaikh

Mohit Rawat

Lakshya Narang

Parmarth Rathod

Sanskriti Pawase

Kartikey Prajapati

Tanu Prajapati


Prateek Shigli

Abhishek Vishwakarma

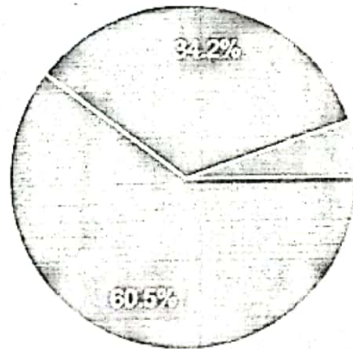
Ashish Pandey

Risha Nadar

How was the overall organization of the session?


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38 responses

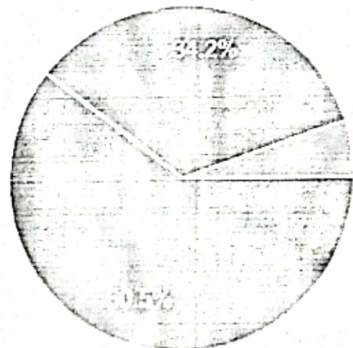


- Excellent
- Very Good
- Good
- Fair
- Poor

How relevant was the content discussed by the speaker?


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38 responses

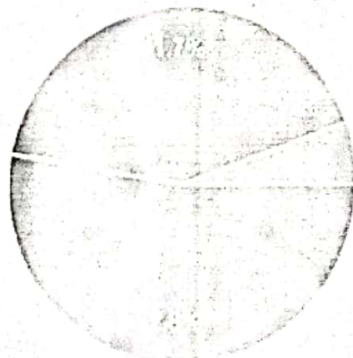


- Excellent
- Very Good
- Good
- Fair
- Poor

Are you satisfied with the time and venue/platform?


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36 responses

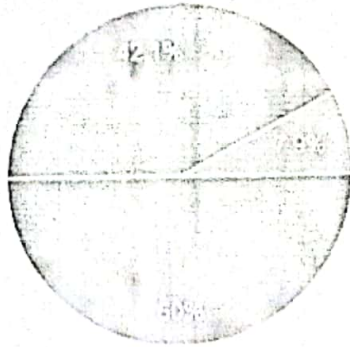


- Excellent
- Very Good
- Good
- Fair
- Poor

How much interesting this session was for you?


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38 responses

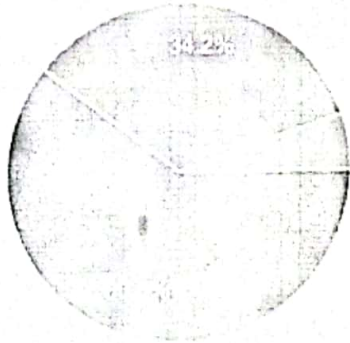


- Excellent
- Very Good
- Good
- Fair
- Poor

Did the lecture cover what you were expecting?


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38 responses

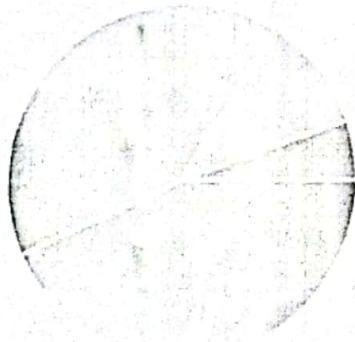


- Excellent
- Very Good
- Good
- Fair
- Poor

How was your preparation about the topic before guest lecture?


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37 responses

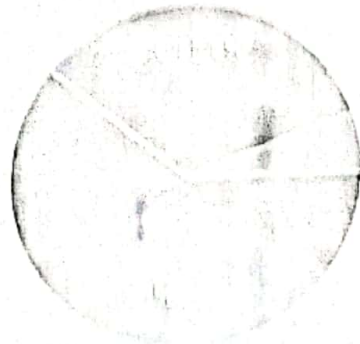


- Excellent
- Very Good
- Good
- Fair
- Poor

How much this session was useful from knowledge and information point of view?


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36 responses

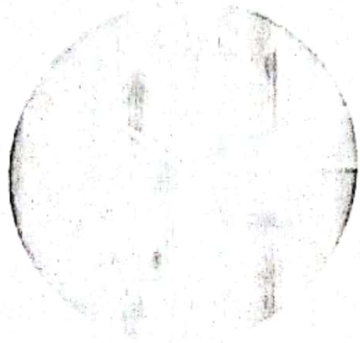


- Excellent
- Very Good
- Good
- Fair
- Poor

Overall effectiveness of the session

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38 responses



- Excellent
- Very Good
- Good
- Fair
- Poor

Additional comments and suggestions for future

7 responses

Good

No

Was a wonderful session, and very informative.

Need some more session such this in upcoming days